



ALTERNATIVE ENERGY OPPORTUNITIES IN SWEDEN

JUNE 2009

One **Big** Thing

Alternative Energy Opportunities in Sweden

With three new companies added to the A-list, Embassy Stockholm carries on the tradition of highlighting great Swedish ideas and companies in alternative energy.

The purpose of the A-list is to introduce Swedish companies to potential American and other partners, including venture capital firms, to encourage their great business ideas. Now, with 52 A-list companies seeking alternative energy solutions in fields as diverse as alternative vehicle fuels, waste to energy, and wave power, this list is more relevant to today's issues than ever before.

Robert J. Silverman
U.S. Chargé d'Affaires
Stockholm
June 30, 2009

One **Big** Thing

Alternative Energy Opportunities in Sweden

Index

Alternative vehicle fuels:

AGERATEC, page 4; CHEMATUR, page 8; CHEMREC, page 9; CONSAT, page 14; ECOIL, page 17; REAC FUEL, page 39; SEKAB, page 44; SWEDISH BIOFUELS, page 49.

Boiler Technologies:

CATATOR, page 7; CHEMREC, page 9; COMPOWER, page 13; CORTUS, page 15; HOTAB, page 23; NIBE, page 31; SVENSK RÖKGASENERGI, page 45.

Efficient Building:

COMFORT WINDOW SYSTEMS, page 12; CHROMOGENICS, page 10; EXERGY, page 21; LINDINVENT, page 27; NEOVA, page 29; NORDIQ, page 33; PARANS, page 36; REHACT, page 40; TD LIGHT, page 51.

Electricity Production:

HEXAFORMER, page 22; SEEC, page 43.

Engine Technologies:

EFFPOWER, page 19; ELECTRIC LINE, page 20; NFO DRIVES, page 30; NILAR, page 32; NORSTEL, page 34; PICOTERM, page 37; OPCON, page 35; STRIDBERG POWERTRAIN, page 47; TRANSIC, page 52.

Fuel Cells:

OPCON, page 35.

Solar Technologies:

CLIMATEWELL, page 11; S-SOLAR, page 46; KOCKUMS, page 25; MIDSUMMER, page 28; PARANS, page 36.

Waste to Energy:

BEAKON TECHNOLOGIES AB, page 5; BIOPROCESS CONTROL, page 6; DETOX, page 16; ECONOVA, page 18; KARLSKOGA BIOFUELS, page 24; LÄCKEBY WATER, page 26; OPCON, page 35; RANOTOR, page 38; SCANDINAVIAN BIOGAS, page 41; SWEBO, page 48; SWEDISH BIOGAS INTL, page 50; XYLOPHANE, page 54; ÄFAB, page 55.

Wave power:

SEABASED, page 42.

Wind power:

TRANSIC, page 52; VERTICAL WIND, page 53.

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Alternative Energy Opportunities in Sweden

Ageratec AB

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Contact: David Frykerås, Managing Director
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Product: Biodiesel processors

Turnover: USD 16 Million

Employees: 34

Ownership: David Frykerås 34%, Alfa-Laval 66%

Sales Area: The European Economic Community, Australia, North America, South America, South Korea, Africa, Ukraine and Belarus

References: Bioworks Australia Pty Ltd, Tolefors gård Sweden,
<http://www.trans-c-martinez.com/> (Spain)

Looking for: "Business opportunities; Partners that might be of interest for cooperation and/or business purposes; Help with promotion and marketing; Financing help for customers (notification of grants available for customers to apply for from Local Governments/US Government and others); Legal advice."

U.S. Connection: "We are currently pursuing business opportunities in the United States."

Product Description:

Ageratec focuses on providing alternative solutions for renewable energy that are economically and environmentally friendly. The main focus is to offer complete solutions for the production of biodiesel for own use or for sale:

- Unique, turnkey, modular, skid-mounted biodiesel reactor units
- Multi-feed pre-treatment system allowing waste cooking oil, animal fats, palm oil and other FTEs as feedstock
- Target markets: small fleet owners and cities/towns

Ageratec has customers within various sectors such as agriculture, municipalities, fuel/oil companies and transportation companies. Demands are

ranging from reliable and easy to operate turnkey processors to entire production systems, including the seed pressing equipment, pre-treatment equipment, quality testing, project management and engineering. Ageratec processors consume very little energy per gallon biodiesel produced compared to its competitors, and the production process is very clean. The only by-product in the production is glycerol that can be used or sold.

Ageratec manufactures biodiesel processors that produce from 180.000 to 75.000.000 US gallons of biodiesel per year and all models and plants can easily grow in size.

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Alternative Energy Opportunities in Sweden

Beakon Technologies AB

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<http://www.beakontech.com>



Contact: Nicklas Larsson, CEO
nl@beakontech.com

Product: Thermoelectric chip

Turnover: VC funded company, first revenues planned for 2010

Employees: 5

Ownership: Magnus Hivert, Erik Ryding, Pontus Kristiansson, Nicklas Larsson, NorthZone Ventures, TeknoSeed AB

Sales Area: No current sales, though international interest in the technology

References: Electrolux, BMW, Volvo, Honda and Aixtron.

Looking for: "Venture capital, industrial contacts, both suppliers and customers."

U.S. Connection: "Beakon is cooperating with four companies and one university in the USA that are supplying solutions to different parts of our chip. Beakon is in contact with several U.S. based venture capital firms that are interested in the next financing round. Beakon is pursuing a holistic discussion with one potential customer in order to optimize the development of the chip and allow for an efficient design process once we get to that point. Beakon has been approached by many companies (potential customers) from the USA, though they are pending until further progress is made with the chip."

Product Description:

Beakon's innovation is a cooling and energy chip. The chip can convert waste heat into useful electric energy with high efficiency. Another application is as a solar cell, where the chip can convert the heat from the sun into useful electrical energy (in comparison with today's solutions that convert the light from the sun to electricity).

The thermoelectric chip has the efficiency equivalent to today's compressors, but with advantages such as form factor, reliability, environmental friendliness and simplicity to stabilize temperatures. The core technology addresses the greatest

problem of today's thermoelectric elements (Peltier element); low efficiency. Beakon Technologies' element contains a nano-scale "phonon trap" to stop phonons from creating the competing flow. The element has the potential of delivering 10-15 times higher energy efficiency than the Peltier elements of today, and 30% higher efficiency than today's compressors.

Beakon is a member of the Sweden Cleantech Incubator and has consequently passed their screening process for cleantech companies.

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Alternative Energy Opportunities in Sweden

Bioprocess Control Sweden AB

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Sweden

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<http://www.bioprocesscontrol.com>



Contact: Kristofer Cook, Managing Director
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Product: Biogas Optimizer™, Intelligent Process Automations Solutions (IPAS), Automatic Methane Potential Test System (AMPTS)

Turnover: N/A

Employees: 8

Ownership: Founders, Anlo Holding AB, C-E Hansson Förvaltning AB, LUAB (Lund University Development AB)

Sales Area: Sweden

References: E.ON Gas Sverige, Svensk Biogas AB, Swedish Biogas International AB, Kalmar Biogas AB

Looking for: "Venture capital companies, interested in participating in the fourth & fifth round of financing during 2009 and 2010 (approx. USD 2.5 Million)."

U.S. Connection: "We have ongoing discussions with several businesses involved in the design and operation of biogas sites. Market entry during 2010 is still our plan."

Product Description:

Bioprocess Control is a market leader in providing technologies and services that support the efficient design and operation of biogas plants and processes. Our prize winning process diagnosis, decision support and optimization application - Biogas Optimizer™- addresses the three main problems facing commercial biogas producers today; namely poor process efficiency, stability and site management.

The Process Optimizer module of Biogas Optimizer™ provides commercial biogas producers with an on-line monitoring system and intelligent supervisory control of biogas digesters. The system has the ability to protect a process from overload and disturbances, while allowing the maximum utilization of digester capacity.

Biogas Optimizer™ is simple to install, can be utilized in both new and existing biogas production plants and is suitable for most substrate materials, such as sludge/wastewater; stillage from ethanol production; and the co-digestion of various organic waste products.

Biogas Optimizer™ can be used as an add-on module or integrated with a leading control system. It provides commercial biogas producers with the following advantages:

- An accelerated production process
- Higher productivity and output
- Stable and reliable production
- Protection against disturbances
- Faster start-up of bioreactors

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Catator AB

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Contact: Fredrik A. Silversand, Chairman
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Product: Catalytic cleantech

Turnover: USD 2 Million

Employees: 8

Ownership: Dr. Fredrik A. Silversand, Dr. Tihamer Hargitai, Dr. Jan Brandin

Sales Area: Global sales, US, Europe, Japan

References: SWEP International AB (Sweden), Haldor Topsøe a/s, (Norway)

Looking for: “External financing for expansion to grasp increased marketing activities and investment in additional production facilities.”

U.S. Connection: “We have license agreements and collaboration with several companies in the fuel cell business. We also have close discussions with governmental organizations in the U.S. concerning fuel processing and fuel cells.”

Product Description:

Catator's products are found in the area of catalytic cleantech. The proprietary catalyst technology comes with a number of advantages over conventional catalyst with respect to effectiveness, geometrical advantages, flexibility, low pressure drop and thermo-mechanical durability.

Catator specializes in catalytic burners, VOC-abatement and fuel processing (hydrogen production).

Catalytic combustion gives an efficient and clean combustion in an extremely compact burner design. The catalytic burner can be combined with a plate-type heat exchanger to give a catalytic heat exchanger. This product has raised a great interest among the boiler manufacturers all over the world (market potential, > 5 million units a year). Moreover, Catator has developed burners for renewable fuels like biogas, ethanol

and bio-diesel, and the catalyst is also well suited for small-scale hydrogen production.

Catator already sells a lot of wire-mesh catalysts for VOC-treatment and deodorization. This market segment is expected to expand together with the increasingly stringent environmental legislation. Catator catalyst gives excellent conversion degrees of these harmful components in a compact design (less cost for construction materials).

Catator technology stands for:

- Efficiency
- Clean conversion
- Possibility to use renewable fuels
- Compact and innovative design
- Low pressure drop
- High thermo-mechanical durability

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Chematur Engineering AB

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Contact: Per Simonsson, CEO
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Product: Bioethanol production technology

Turnover: USD 200 Million

Employees: 200

Ownership: Privately owned

Sales Area: Worldwide

References: PLP, BIOPAL, and KORFIL, Czech Republic, Cangzhou Dahua and China National Bluestar Group, China; Dyno Nobel and Orica, Australia; Cambrex, Sweden; Maquiltech, Colombia; Jfe, Japan.

Looking for: "Biofuel projects in the U.S."

U.S. Connection: "We have access to the U.S. market and connections with U.S. businesses."

Product Description:

Chematur Engineering sells a bioethanol technology with continuous fermentation and a zero liquid effluent solution. The process is state of the art where the reaction between the yeast and sugar is instantaneous, resulting in the reactor being virtually free from residual sugar. Combined with special primary distillation where the reaction mass is pasteurized and partly recycled, this reduces the risk of infections in the system to zero and ensures that there will be no shutdown of the Biostil®2000 plant because of infections.

The water consumption is very low since the concentrated stillage is produced without external evaporators. Most of the process water is recycled back to the fermentation stage. With sugar, the concentrated stillage is used as fertilizer after addition of nutrients. A sugar based

Biosti®2000 plant produces as little as 1.1 liter stillage per liter of ethanol. With starch, the Biostil®2000 plant could be combined with biogas production. It is possible to build a biofuel complex that is self-sufficient in steam and electricity by running the gas turbine with biogas. There will be a surplus of electricity that can be exported to the grid. It is also possible to refine the biogas to fuel gas. Traditional solutions like DDGS or incineration of the stillage can also be utilized.

Potential end-users are energy companies, private developers etc. Preferred scope of supply is license, detailed engineering, key equipment supply, assistance during erection, start-up and commissioning. Process performance guarantees provided.

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Chemrec AB

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Contact: Jonas Rudberg, COO
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Product: Black liquor gasification technology, fuel from forest

Turnover: USD 1.5 Million

Employees: 27

Ownership: Vantage Point, Volvo Technology Transfer, Nykomb Synergetics, Environmental Technologies Fund

Sales Area: Worldwide

References: Weyerhaeuser New Bern, NC Commercial Booster Gasifier, Piteå Sweden development plant

Looking for: "Pulp mills or biofuel plant investors wishing to increase profits by producing automotive biofuels while increasing pulp mill capacity."

U.S. Connection:

Product Description:

Chemrec helps pulp and paper mills transform into Biorefineries with a unique, proprietary black liquor gasification technology.

With the Chemrec technology, the global production potential for biofuels is on the order of 225 million barrels oil equivalent per year, or nearly twice the current U.S. automotive Biofuels production. At USD 20 Billion annual fuel revenues, this represents greater than 1/3 of total pulp industry revenues. Thus, the potential of the Chemrec Biorefinery offers a step-change in results to the pulp and paper industry.

Chemrec's biofuels reduce overall carbon footprint by more than 90 percent. With

the additional benefit of not competing for food or agricultural land, Chemrec biofuels are a true leader in the move to sustainable mobility.

The gasifiers offered by Chemrec today vary from atmospheric air-blown units aimed solely at pulp mill capacity extension, to 500 tons/day pressurized unit oxygen-blown units for commercial demonstration of Biofuels production, installed parallel with the mill's existing recovery boiler. Eventually, a full recovery boiler replacement is targeted.

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<http://www.chromogenics.se>

ChromoGenics

Contact: Per Wassén, Chairman
per.wassen@volvo.com

Product: Smart windows

Turnover: > USD 0.5 Million

Employees: 22

Ownership: Founders, Volvo Technology Transfer, DuPont Ventures, Innovationsbron, Uppsala AB, Uppsala University Holding AB, Industrifond, Bankinvest

Sales Area: Sweden and Europe

References: Confidential; contracts pending

Looking for: “Investors for the second round of financing in the second half of 2010 to enable large volume production capability for window applications.”

U.S. Connection:

Product Description:

Materials with variable transparency are known as “chromogenic” or Optically Switchable Materials (OSM). These materials are used for large area glazing in buildings and vehicles, for sun visors, eyewear, rear view mirrors and for information displays. Several switching technologies are included in the chromogenic family, based on e.g. electrochromics, liquid crystals, suspended particles and photochromics. ChromoGenics works with the most promising switching technology: viz. electrochromics, and has developed a unique flexible foil with variable

transparency. The company was founded in 2002 by six researchers from the Uppsala University. The technology has been developed for twenty years and is now ready for the market.

ChromoGenics’ foil-based electro-chromic technology is ideal for reducing solar heat gain in large surface applications, i.e. smart windows. The company has acquired a leading position based on its long research background, patent protection of materials, system design and production processes for large-scale production.

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Alternative Energy Opportunities in Sweden

ClimateWell AB

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Contact: Per Olofsson, Group CEO
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Product: Solar powered Air Conditioning system

Turnover: US 6 Million

Employees: 63

Ownership: Utilsun (Spanish group of private investors), Industrifonden (Swedish VC), Skirner (Swedish VC), Northzone (Swedish VC)

Sales Area: Spain, France, Belgium, Italy, Dubai, Australia and India

References: ASE, GdS, Erbe, Idrocentro, Kingspan, Merloni Termosanitari

Looking for: "U.S. shareholder or business partner. Very interested in starting a dialogue to identify the right partner."

U.S. Connection: "ClimateWell has this spring begun a thorough analysis of the market opportunities in the U.S. We have mapped the customer value proposition for solar powered Air Conditioning for each state and found that the best results are achieved in: Arizona, California, Nevada and Texas."

Based on this analysis we are now searching for the right market partner(s) in the U.S. in general and in these states in particular. Such a partner could be a major HVAC contractor or a supplier of related equipment (such as GE, Honeywell, Johnson Control or American Standard). We have also recently signed a collaboration contract and become a selected vendor for solar cooling by the Clinton Foundation."

Product Description:

ClimateWell is the global leader in the emerging solar cooling business and was recently awarded Technology Pioneer 2007 by the World Economic Forum. The product stores solar heat from standard solar thermal collectors and then delivers it as cooling or heating, day or night. The targeted customers are commercial buildings such as hotels, hospitals and super markets as well as single family homes. The end user value proposition stands firmly on the following core benefits:

- Substantially lowered energy costs for air conditioning, space heating, tap water heating and pool heating.
- Independency of fluctuations in energy prices and supply through the use of the abundant, free and sustainable solar energy.
- Unmatched contribution to lowering CO2 emissions (up to 45 000 kg per dwelling and year).

The products are based upon proprietary and globally patented technology called triple state absorption.

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Comfort Window System AB(publ)

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Fax. 46 31 29 40 29
<http://www.comfortwindow.se>



Contact: Hans Öhman, CEO,
hans.ohman@comfortwindow.se

Product: Energy efficient window fittings

Turnover: Start up

Employees: 2

Ownership: Hans Öhman, Georg Ernst, Cisab, Christer Gåhlthrop, Per G Lundh

Sales Area: Europe, United States of America, Canada

References: Siegenia-Aubi KG in Germany, Pilkington in UK

Looking for: "Contact with investors and the window industry in the U.S."

U.S. Connection: "We are pursuing cooperation with the Swedish-American Chamber of Commerce and the Swedish Trade Council."

Product Description:

New window fitting patented in the U.S. and +18 countries. The window can turn 180 or 360 degrees. With a solar control glass it can achieve sun protection in the summer season (blind effect) and turned for the cold season gaining sun energy (radiator effect).

The CWS window technology is the only one to offset the greatest disadvantage of standard solar control glass – by letting the sunshine energy in for the cold season.

The amount of energy that can be saved by CWS technology is between 50 to 200 kWh per 10 sq ft window area annually, depending on comparison parameters. The technology is applicable to all windows that can be opened in all kinds

of buildings - commercial, public and private.

For a 1000 sq ft house with 100 sq ft of window area, energy savings are typically 1400 kWh per year.

Other advantages are: Superior comfort by less heat load; 2 to 5 degrees lower room temperature gives better working climate and efficiency.

-Greater airing flexibility by choosing top or bottom opening.

-Higher degree of safety. Always clean the window from inside in closed position - on both sides!

-CWS window technology is unique to fully optimize solar control glass.

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Alternative Energy Opportunities in Sweden

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Contact: Anders Malmquist, CEO
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Product: Energy efficient boilers

Turnover: USD 1,2 Million

Employees: 6

Ownership: Founders, Teknoseed (Swedish VC), Energy Future Invest, Norway (Norwegian VC), Innovationsbron Syd

Sales Area: Sales launch in Scandinavia and Europe in 2011

References: Two field trial customers in the region

Looking for: "Equity. Fund raise ongoing, approx amount USD 30 Million. Next fund raise planned for Q3 2010."

U.S. Connection: "We are currently running a pre-study together with Boston-based Wilson Turbo Power on a system that combines the innovative products from each company. The study is supported by the Swedish Energy Agency and US DOE. In addition we are also preparing joint ventures with the U.S. and Swedish based companies in order to explore market opportunities."

Product Description:

Compower develops economical, easy to use and eco-friendly products based on a unique, patented design that combines a boiler with a small micro-turbine.

Compower Boiler is a micro CHP power supplying unit that can reduce energy costs for single and multiple-family homes by as much as 50 percent. The boiler can in part supply the individual home and in part produce a surplus that is exported to the network.

It combines the simplicity and reliability of a regular home boiler with high-performance components from the automotive industry and the best possible

boiler to produce an effective, eco-friendly product.

This is a modern, innovative system that is easy to install, has a low noise level and is environmentally friendly. Winners are both the end users who can cut energy costs, and society, with lower emissions of CO₂.

The product is based on externally heated micro turbine technology that enables the use of a wide range of fuels, including biogas and pellets.

The Compower Boiler is in the field trial phase and will be on the market early 2011.

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Alternative Energy Opportunities in Sweden

Consat SES AB

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Contact: Jeanette Johansson, CEO
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Filip E Kjellgren, Business Area Manager
filip.e.kjellgren@consat.se

Product: Cleantech development service

Turnover: USD 25 Million

Employees: 200

Ownership: Jan Bertil Johansson

Sales Area: USA, Canada, Sweden and the EU

References: AB Volvo Powertrain, VBC

Looking for: "Interested in becoming a link/partner between One Big Thing cleantech companies and financial investors on the U.S. market, and thus act as the recommended preferred supplier of engineering services in bringing new inventions to the market."

U.S. Connection: "We are working with Test Site Sweden (a Swedish organization that promotes Sweden as a test platform for vehicle testing) on a collaboration project with DoE/Argonne National Labs. The project deals with electric vehicles and plug-in hybrids and their use pattern as well as charging infrastructure that is needed for these types of vehicles."

Product Description:

Consat AB is an engineering company with one of three departments fully dedicated to clean technology – Alternative Powertrains & Energy Systems. The company also offers a telematic fleet management system customized for public transport networks.

Consat supports its customers with highly qualified technical services within electric and hybrid vehicle systems and energy storage systems. The company participates in core development projects on site at several renowned automotive customers and supplies engineering knowledge on alternative fuels for all

means of transportation, including the marine sector.

Consat offers additional services for sustainable energy usage through industrial energy efficiency programs and life cycle assessments (LCA).

Consat is also a partner of Test Site Sweden, a world leading demonstration and test environment for sustainable vehicle technology and infrastructure. Current activities include initiating vehicle test fleets and design of electrical infrastructure for charging.

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Alternative Energy Opportunities in Sweden

Cortus AB

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<http://www.cortus.se>



Contact: Rolf Ljunggren, Managing Director
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Product: Biomass gasification solution

Turnover: USD 0.2 Million

Employees: 3

Ownership: Rolf Ljunggren

Sales Area: Nordic Countries, the EU and the USA

References: Nordkalk AB, SSAB Tunnplåt (SSAB Svenskt Stål Aktiebolag)

Looking for: “Process industries wanting to become CO₂- neutral, where high temperature processes such as steel reheating, lime kilns, cement kilns and glass furnaces demand a high powered fuel.”

U.S. Connection: “We are trying to find new business for gasification. We have started to work through a couple of different sales channels. We are particularly looking into Georgia, Minnesota and California.”

Product Description:

WoodRoll is a new patented process for gasification of biomass giving higher energy yield than what has been possible before. The result is pure synthesis gas (H₂/CO) that can be used as an energy gas (or raw gas for further refining to fuel).

The process is unique in the integrated solution for tar and ash handling that the high temperature heat exchange and gas separation make possible. The process is built upon well-established industrial technology, compiled in a new fashion. Further development of the process will produce pure renewable hydrogen and a possibility for carbon capture (two patents pending).

The business model is to supply energy gases to process industry customers with high temperature operations. This has not been possible with renewable fuel as of yet. Cortus will build, own and operate facilities at each customer's site, supplying renewable energy gas on long term contracts.

WoodRoll® transforms biomass in a unit process to pure synthesis gas (H₂/CO) with a high energy concentration and at a lower cost than fossil fuels, which makes it possible to introduce renewable fuels to process industries.

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Alternative Energy Opportunities in Sweden

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Contact: Mikael Karlsson, CEO
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Johan Barwén, Marketing Manager
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Product: Biogas from seaweed and algae

Turnover: USD 1.5 - 2 Million

Employees: 10 (2009)

Ownership: Mikael Karlsson, through his company LaQing AB

Sales Area: Today: Sweden; emerging markets are Poland, UK, US, China, etc.

References: Municipality of Trelleborg, Eon Gas Sweden, Avfall Norge

Looking for: "Venture capital and joint venture partners on the U.S. market."

U.S. Connection: "We are very interested in gaining access together with a U.S. based business or organization in the near future."

Product Description:

Detox Biogas AB is a young and highly expansive knowledge company with in-house, patent-pending technology solutions and products. Detox's unique know-how focuses on developing new hi-tech concepts in biogas production, and provides a lot of competitive edge and great development potential. Furthermore, renewable energy is in global demand. Seaweed and algae stack up on beaches and along coastlines where they become an environmental nuisance because of the stench, as well as being an obstacle for people to use the coastline for swimming and recreation.

Removing seaweed and algae from the beach will also in some places reduce the effects of over-fertilization while protecting important growth environment for fish and birds. Seaweed and algae sometimes contain heavy metals, e.g. cadmium. In such cases, the source material must be

treated in a manner that will not increase the strain on nature from cadmium. Our ambition is to bring the technology to markets around the world where the need for renewable energy is great, and where there are, or can be, generous volumes of marine or other biomass suitable for the Detox Biogas Process. Potential end-users are found within municipalities/counties, and in food industries providing their own biomass. One unique feature is the pre-treatment process where heavy metals and other substances are removed, and the biomass prepared for maximum biogas potential. Another one is to project and customize plants for small and midsize needs. This is important for the return on investment, and will minimize the need for transportation.

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Ecoil AB

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Contact:	Robert Hesselstad robert@ecoil.se
Product:	2nd generation biofuel technology
Turnover:	USD 1.207 Million
Employees:	10
Ownership:	Privately owned company
Sales Area:	Sweden
References:	Karolinska University Hospital/ Spinalis, National Property Board – Royale Palace Drottningholm, Lantmännen (Swedish Farmers Association) Energy AB, Petrolia AB (Agrol/OK-Q8), Swedish Church

Looking for: “Interested in international expansion, to exploit their refining technology in global markets. The company is prepared to sell the concept to serious partners, providing education, process know-how and a long-term partnership.”

U.S. Connection: “Our most important relationship with the United States is the one we have with our supplier Anderson International in Cleveland, Ohio.”

Product Description:

Ecoil has developed a refining process which enables the removal of “non-burning” substances from vegetable oils, such as rape seed (canola), soy, corn or other farmed oils. The technical features of the oil are very similar to ordinary heating oil, with high energy content, low sulphur, low ashes, and environmentally favorable features.

The process is more cost-efficient than RME/SME processes. The Ecoil heating oil can completely replace fossil heating oil in small and large scale heating facilities – with very low conversion costs.

An Ecoil Plant can produce oil in an integrated oil processing plant from agricultural raw materials for direct delivery to the end-users. A plant can be designed to produce from 20,000 to over

100,000 tons of refined oil. The pilot plant in Kungsör is designed for 5,000 tons. Ecoil refining process is sustainable and cost effective. A plant can be located anywhere, with no hazardous waste. The “rest product” is a highly potent protein meal for livestock. The meal process is developed in corporation with U.S. companies specialized in soy protein meal.

Ecoil was one of the finalists for the Swedish prize for new innovations (SKAPA) in 2006. Technical studies have been financed by the Swedish Energy Agency and documented by accredited testing institutes. Ecoil is a member of SVEBIO, The Swedish Bioenergy Association.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Econova AB

Box 90

61621 Åby

Sweden

Tel. +46 11 368 100

Fax. +46 11 368 109

<http://www.econova.se>

Contact:	Håkan Larsson, CEO hakan.larsson@econova.se
Product:	Waste to energy solutions
Turnover:	USD 150 Million
Employees:	240
Ownership:	Privately owned company with four (4) main shareholders
Sales Area:	Countries in Baltic region
References:	StoraEnso Ltd (Sweden/Finland), Korsnäs AB (Sweden)

Looking for: “Potential American customers in the cleantech market. Econova aims to provide a know-how transfer, based on royalty payments/consultancy fees from local partners.”

U.S. Connection: “We are looking closer into the U.S. market.”

Product Description:

In the conversion process industries create substantial volumes of residues and waste, such as sludge, bark and sawdusts. Econova recycles waste and by-products from the forest industry and other parts of the society. Econova is also active in landfill operation with restoration of old landfill sites and landfill gas utilization as special knowledge areas.

Econova is continuously developing tailor made, environmentally friendly processes. Econova converts the material into products as biomass for CHP generation, soil improvement, landfill restoration material and landfill gas converted into green electric energy - or in the near future also as high grade bio fuel for vehicles. With new ways of thinking, Econova turns landfill areas into useful surfaces for treatment of leachate,

storage, crops, composting and bio fuel production.

The main advantages are:

- Possibility for total conversion of waste to products needed in the local eco cycle.
- Recycling of non hazardous waste from the industry into useful end products.
- Reduced need for land filling areas
- Flexible process alternatives allowing changes in the raw material (waste characteristics).
- Use of natural processes with sun & wind and micro-organisms as co-workers.
- Minimization of flue gas emissions and maximization of energy content due to improved bio fuel quality (for e.g. CHP boilers).
- Substitute for other virgin raw materials.
- Creating a sustainable society.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Effpower AB

St. Jörgens väg 14C
422 49 Hisings Backa
Sweden
Tel. +46 31 559 094
Fax. +46 31 559 098
<http://www.effpower.com>



Contact: Per Svantesson, CEO
per.svantesson@effpower.com

Product: Bipolar batteries for HEVs

Turnover: < USD 1.5 Million (start-up phase)

Employees: 35

Ownership: Volvo Technology Transfer, Industrifonden (Swedish multi-sector investor), Gylling Invest AB (Swedish VC), Banner Batterien GmbH (Austrian battery company), Lorito Holding, K-svets AB, Banner GmbH

Sales Area: Sweden and EU

References: Volvo

Looking for: "Contacts with U.S. venture capital companies for the next financial round, planned for the summer of 2009."

U.S. Connection:**Product Description:**

The Effpower LIC™ technology is based on lead-acid chemistry in a bipolar arrangement with lead infiltrated ceramic (LIC™) bipolar plates as partitioning walls between the cells. In the bipolar concept the battery cells are connected in series and the battery voltage is 2 volts/stacked cell. The battery is designed for hybrid electric vehicles (HEV).

Effpower has entered a phase of industrialization and partners with an Austrian battery manufacturer. High volume serial production is planned for mid 2010 (prototypes since autumn of 2006).

- The Effpower LIC™ Power Batteries are characterized by a modular design with a cost-effective stacking method to manufacture compact high voltage batteries.
- Short distance between the electrodes with low internal resistance provides high power during charge and discharge with limited heat generation.
- Even current distribution over the plate and through the battery gives high utilization of the active materials and a long life-cycle with high energy turnover.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Electric Line AB

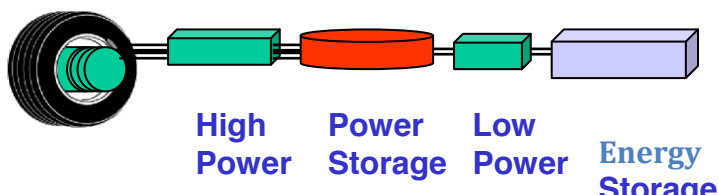
Sylveniusgatan 5D

754 50 Uppsala

Sweden

Tel. +46 18 180 600

<http://www.electricline.se>



Contact: Hans Bernhoff, Managing Director
hans@bernhoff.com

Product: Electrical vehicle propulsion system

Turnover: Start-up phase

Employees: 2

Ownership: Leijon Engineering AB, Bernhoff Technology AB, Energy Potential AB

Sales Area: Initially Sweden

References: Start-up phase

Looking for: "Venture capital and joint venture partners on the U.S. market."

U.S. Connection: "We do not currently have any connection to the United States."

Product Description:

Electric Line AB develops products and markets a system for electric vehicle propulsion: A new 100% electric drive line for vehicles (for second generation electrical vehicles).

The technology will provide a means for efficient recycling of braking energy, high power for acceleration and an opportunity for a fast recharge at "gas stations" for electric vehicles.

The technology has been developed by researchers at the Uppsala University's Electricity Research Department.

The developers have filed patents for the technology and hope to start commercial production by 2010.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Swedish Exergy AB

Gamla Rambergsvägen 34
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Sweden
Tel. +46 31 51 39 90
Fax. +46 31 51 79 60
<http://www.exergyse.com>



Contact: Claes Münter/Prem Verma, verma@exergy-consult.se
Product: Biofuel and pellet production technologies
Turnover: USD 9 Million
Employees: 7
Ownership: Claes Münter, Prem Verma
Sales Area: Worldwide
References: ENA Energi AB, BioWood Norway AS, DONG Energy AS, Rockhammars Bruk AB

Looking for: “Opportunities on the U.S. markets for biofuel drying and bio-pellet production, energy optimization and recovery systems.”

U.S. Connection: “Currently cooperating with a company in South Carolina.”

Product Description:

Exergy Bed Dryer

This simple and robust (patented) technology from Exergy Consulting has been used for the last 20 years. The bed dryer can be integrated as part of the fuel feeding equipment to the boiler. The bed dryer consists of a specially designed moving bed, a heat-exchanger and a fan.

The low-grade waste heat available can be used for the drying process. The desired temperature is 70 C or higher.

Fuel consumption can be reduced by 15%, if boiler fuel is dried to 30% moisture content. Drying also eliminates the need of any supplementary fuel.

As dried fuel needs less excess air for combustion, less flue gas and water vapor is generated, which reduces flue gas treatment costs.

The Exergy Steam Dryer

Superheated steam for drying of solid materials like paper pulp, saw dust, wood waste, sugar beat pulp and other cattle feed, peat, sludge and other wet solid waste. High-pressure steam (15-30 bar), flue gases, thermal oil or even electricity can indirectly heat the dryer. The residence time is only 10-30 seconds, but dryness close to 99.9% in dry solids can be achieved without any risk for fire or explosion.

Complete sterilisation of the product is guaranteed. Since the process is closed, emissions are avoided, and it is possible to treat the generated steam condensate separately. The moisture vaporised from the wet material can be used as a secondary steam, which means that up to 80-90% of the drying energy can be recovered.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Hexaformer AB

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195 61 Upplands Väsby
Sweden
Tel. +46 8 590 060 80
Fax. +46 8 590 080 81
<http://www.hexaformer.com>



- Contact:** Lars Bengtsson, CEO
lars.bengtsson@hexaformer.com
- Product:** Transformers and reactors for electric distribution networks.
- Turnover:** USD 3 Million in 2007
- Employees:** 15
- Ownership:** Magnus Palmstierna, Sustainable Technologies Fund, Innovationskapital, Hexa Invest, Uster (Lennart Höglund) Bliwa Livförsäkring, Norrlandsfonden and Hexaformer staff
- Sales Area:** Complete products offered in northern Europe. Licenses offered globally
- References:** Vattenfall, Jämtkraft, Balfour Beatty Rail, BTB Plaza, Chalmers University of Technology and Warner Power
-

Looking for: “Various types of partners that can help develop the company globally.”

U.S. Connection: “Warner Power is our first customer in the United States. We are also pursuing a joint venture in Monroe, NC called MSECC.”

Product Description:

Hexaformer has patented technology for three phase transformers, typically used for distribution of electricity. These transformers demonstrate properties that are superior to traditional transformer technology in several aspects:

- Substantially lower energy losses (no load losses reduced by 25% or more)
- Lower electromagnetic stray field
- Less material used (up to 30% smaller core volume)
- Lower weight
- Less volume
- Less vibrations
- Lower noise level
- Lower inrush current
- No third harmonic

The other product line is built around patented reactors. The reactors are used to utilize the networks more efficiently. They compensate for earth faults, but also for reactive currents in long cables and capacitive currents that are introduced when energy cables are deployed close together (for example in the ground).

The unique characteristics are achieved by completely new ways to manufacture the transformer core. Hexaformer winds the electric steel of equal bandwidth in rings forming a delta shaped (“triangular formed”) cage core.

One **Big** Thing

Alternative Energy Opportunities in Sweden

HOTAB GROUP

Hedentorpsvägen 16
291 62 Krisitanstad
Sweden
Tel. +46 44 218 400
Fax. +46 44 218 484
<http://www.hotab.se>



Contact: Magnus Hermansson, Marketing Director
magnus.hermansson@hotab.se

Product: Combustion plants for solid wood fuel

Turnover: USD 20 Million

Employees: 45

Ownership: Jonas Tarstad, Gert Tarstad, Anette Tarstad

Sales Area: Sweden, Norway, Finland, Easter Europe, Russia, Ireland, USA, Canada

References: Skånefrö, Bioagro EU Life project in Skåne, Mörbylånga Energi, Sjöbo and 500 other costumers of our complete systems delivered the last 30 years.

Looking for: "Market opportunities, market entry, partners and project financing."

U.S. Connection:

Product Description:

HOTAB manufactures combustion plants for solid wood fuels such as bark, shavings, chips, pellets and briquettes. Also plants for biofuel from agriculture, e.g. screenings, rape cakes, grain, grass etc. The potential in Sweden is to make use of all agricultural residues and save 20 TWh of oil annually in Sweden.

HOTAB works with installations ranging from 100 to 17,000 KWh. All plants are unique and tailor-made according to the customer's wishes.

HOTAB's strength is the regulation philosophy where the company can control the entire combustion process electronically to obtain an optimal efficiency with minimal environmental pollution. Furthermore, there will be no CO₂ emissions. This benefits the environment and reduces the greenhouse effect.

The company can use fuels with 6-8% humidity to installations where the fuel contains 60% water. Each type of fuel requires its own special combustion equipment.

Customers include DH heating plants, offices and industries. HOTAB also delivers installations to schools, hospitals, farms, saw mills etc.

The company does not have a partner in the U.S., but seeks companies that can manufacture boilers, incinerators and exhaust gas cleaning equipment, adapted to ASME standards but designed according to HOTAB requirements. We are also looking for companies that can manufacture the electric control systems, install plants, take care of electric installations and heating, water and sanitation and insulation work, as the freight costs are much too high when delivering from Sweden.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Karlskoga Biofuel AB

Box 430
691 27 Karlskoga
Sweden
Tel. 46 586 641 00
Fax. 46 586 791 700
<http://www.chematur.se>

Contact: Per Simonsson, the CEO of Chematur Engineering AB
p.simonsson@chematur.se

Product: State of the art Biofuels Production

Turnover: Start-up phase

Employees: 3

Ownership: Karlskoga Energi & Miljö KEMAB
Chematur Engineering AB
Scandinavian Biogas & Fuels AB
PEAB

Sales Area: Sweden

References: The first biofuel (bioethanol/biogas) is currently under construction in Karlskoga, Sweden

Looking for: "Contact with biofuel production companies that are looking for the most efficient and cost-effective biofuel production technologies."

U.S. Connection:

Product Description:

If starch based Biostil 2000 from Chematur Engineering is combined with the Scandgas 610 stillage digestion from Scandinavian Biogas Fuels the overall energy yield from the chemical energy in the grain is increased significantly, from about 55% to more than 82%. The combined process offers a unique possibility to make a green, sustainable solution where all the energy needed for the process is produced from renewable sources.

The Biostil® 2000 process is a state of the art process for producing bioethanol from starch or sugar based raw materials with high efficiency and low environmental impact. The main features are:

- Low water consumption
 - High fermentation efficiency
 - No expensive equipment such as decanter centrifuge and multi-effect evaporator
 - The dual fermenter concept ensures virtually unlimited availability and no yield loss
- The Scandgas 610 heavy duty stillage digestion provides:
- Robust and reliable digestion
 - High loads of material/m3 reactor volume (Small foot-print of the plant; Lower investment cost)
 - High gas yield/m3 reactor volume
 - Patented ultrasonic equipment
 - Low production cost/nm3 biogas

One **Big** Thing

Alternative Energy Opportunities in Sweden

KOCKUMS AB

205 55 Malmö

Sweden

Tel. +46 40 348 000

Fax. +46 40 123 242

<http://www.kockums.se>



Contact: Tore Svensson, Senior Sales Executive
tore.svensson@kockums.se

Product: Concentrated Solar Power (CSP)

Turnover: USD 200 Million

Employees: 1000

Ownership: ThyssenKrupp

Sales Area: Worldwide

References: Kawasaki Heavy Industries (Japan), Sandia National Laboratories (New Mexico, United States of America), Defense Materiel Organizations in Sweden, Singapore, Australia and Japan

Looking for: "Financial support to ensure a timely commercialization of the Concentrated Solar System for our partners (licensees) on the global market."

U.S. Connection: "The initial development for solar energy applications were undertaken together with U.S. partners e.g. Boeing, Southern California Edison, Sandia National Laboratories and Stirling Energy Systems."

Product Description:

The Stirling engine is a heat engine. Heat is produced in a combustion chamber separated from the actual engine. The heat is then transferred to the engine's working gas, operating in a completely closed system. The working gas forces the pistons in the engine to move, thus producing mechanical energy.

The Stirling engine needs only heat to operate. The current commercialization is focused on Concentrated Solar Power (CSP), where the heat is coming from the sun by utilizing a mirror. The mirror concentrates the sunbeams on a Stirling engine, driving an electrical generator which provides the most efficient conversion of solar energy to electrical

power currently available. This energy system is totally emission free.

Kockums has for more than four decades been involved in the research and development of high performance Stirling engines.

The CSP system, based on Kockums Stirling engines, has the potential to become the most cost competitive systems of all solar energy systems due to its suitability for cost efficient manufacturing at high volumes. The modularity and flexibility make this CSP system suitable for both large utility scale power plants (10 MW to GW) and for small distributed energy systems (from 25 kW upwards).

One **Big** Thing

Alternative Energy Opportunities in Sweden

Läckeby Water Group

Box 1146
221 05 Lund
Sweden
Tel. +46 46 191 900
Fax. +46 46 191 919
<http://www.lackebywatergroup.com>



Contact: Stefan Lambert, CEO

Product: Biogas production, water and wastewater treatment

Turnover: USD 90 Million

Employees: 180

Ownership: Privately owned LLC

Sales Area: Worldwide, e.g. Scandinavia, China, Germany, Poland, Russia

References: Bekkelagets Wastewater Treatment Plant, Södra Cell (Sweden)

Looking for: “Potential partners for financing of water treatment plants and biogas production plants.”

U.S. Connection: “We are active in the U.S. with our products for mechanical treatment of sludge and wastewater. Furthermore we are marketing our biogas services in California.”

Product Description:

Läckeby Water Group is a leading know-how company in water treatment, biological sludge handling and the innovative treatment of biological waste. Environmental technology is a tool to secure long-term, sustainable growth. The company has three divisions:

The Purac Division

- Treatment of wastewater, process water and drinking water, biological sludge handling as well as treatment of biological waste.

- Contracting business that unifies broad know-how and experience with internally developed and licensed technologies for innovative solutions delivering increased efficiency and more economical operation.

- Thermophilic or mesophilic digestion is used to produce biogas, which then is

upgraded to biomethane with the LP Cooab or PSA technologies.

Läckeby Products

- Develops solutions for mechanical treatment of water and sludge.

- In-house design, development and production ensure a high level of quality and innovation, and long experience guarantees products that can be adapted to the unique requirements of each plant.

- The product range includes, e.g. Roto-Sieve drum screens, heat exchangers, screw presses, Roto-Sieve piston presses, screw conveyors etc.

Läckeby Service

Offers service and maintenance of customers' plants in local markets.

One **Big** Thing

Alternative Energy Opportunities in Sweden

LindinVent AB

S:t Lars väg 44B

222 70 Lund

Sweden

Tel. +46 46 158550

Fax. +46 46 158577

<http://www.lindinvent.com>



Contact: Thomas Lindborg, Sales Manager, Partner
thomas.lindborg@lindinvent.se

Product: Intelligent climate control & building automation

Turnover: USD 5.5 Million

Employees: 25

Ownership: Lindborg family

Sales Area: Sweden, Norway

References: SonyEricsson office, Lund, World trade center, Malmö

Looking for: "Transatlantic partner."

U.S. Connection: "We see a great potential for our products in the United States and are currently looking for a partner."

Product Description:

IDCC (Intelligent diffuser for climate control) is a product that saves energy in commercial buildings, hotels, schools and hospitals. It controls ventilation, heating, cooling, lighting and power supply on demand. It also optimizes the building on a system level.

The product uses a technology that enables the use of the buildings' internal heat loads, free cooling from cold outside air and built-in sensors to achieve a demand controlled good indoor climate. The typical energy reduction is: +90% less preheating of supply air, +50% less electricity for air handling unit, 25% less cooling, 15% less heating for radiators and +50% less electricity for lighting.

Reference projects in Sweden have a total energy usage of 52kWh/sqm.

As the sensors, actuators and controllers are integrated in the fully prefabricated and calibrated diffuser it also reduces installation costs and increases flexibility. The product has two patents that make the air distribution very silent and free of draught. This also makes the installation in existing buildings much easier as the existing duct system can be used to a high degree.

IDCC is one part of a full system solution, where web servers serve as user interface with logging, is-value-distribution diagrams, administration and alarm handling for full control of the building.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Midsummer AB

Elektronikhöjden 6
17543 Järfälla
Sweden
Tel. 46 8 525 09 610
Fax. 46 8 525 09 611



Contact: Sven Lindström, President and CEO
sven.lindstrom@midsummer.se

Product: Thin-film solar cells

Turnover:

Employees: 11

Ownership: Founders 69.4% (Sven Lindström, Alf Linder, Eric Jaremalm, Göran Lombäck), Infologix BVI 9.5%, Other Minor shareholders 21.1%

Sales Area: Targeted markets are Asia, Europe and North America

References: Available upon request

Looking for: "Midsummer has commenced cooperation with California based companies to develop materials and equipment specific for their solar cells. Midsummer is looking for funding to expand the development and to further strengthen the ties with their American partners."

U.S. Connection:

Product Description:

Midsummer's business concept is to produce inexpensive solar cells by using sputtering, a commercially available thin-film depositing technique to produce 5 inch solar cells with an extremely short cycle time.

The sputtering technology is used in low cost, short cycle mass production, e.g. the manufacture of hard discs and optical discs (CD/DVD).

The technology is applied together with a patent that will increase the solar cell efficiency and decrease the complexity of the manufacturing equipment. Midsummer is applying the mass production technologies and experience to the production of solar cells.

The tremendous growth rate of solar power has created a lack of refined silicon, the main component of today's solar cells. Midsummer thin-film technology is non-silicon based and a perfect answer to the silicon supply problem.

The market price of a raw solar cell today is over USD 2.00/W. Midsummer's initial projections show a manufacturing cost at between USD 0.8-1.2/W for mass production volumes. The low investment costs and the stable process that the company can achieve, opens up an astounding opportunity for large scale manufacturing of solar cells.

Midsummer is the coordinator of the EU-project: HIGH SPEED CIGS.

One **Big** Thing

Alternative Energy Opportunities in Sweden

NEOVA AB

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824 13 Hudiksvall
Sweden
Tel. +46 771 98 00 00
Fax. +46 650 54 74 57
<http://www.neovabioenergy.com>

The logo for Neova AB, featuring the word "neova" in a lowercase, rounded, sans-serif font. The letters are a deep red color.

Contact: Håkan Bjur, CEO
hakan.bjur@neova.se

Product: Renewable energy and fuels from peat and wood material, manufacturer of wood pellets, heat and electricity from power plants, biofuel plant technology, composting technology combined with production of biogas, synthetic diesel

Turnover: USD 300 Million

Employees: 250

Ownership: Vapo (Finnish)

Sales Area: Sweden, Norway, Denmark, Ireland, Germany

References: Mälarnergi (Sweden), Gästrike Återvinnare [Sweden], Norsk Hydro (Norway)

Looking for: “New production opportunities and partners for pellet production. Export opportunities for know-how concerning bio fuels and environmentally sound production of heat and electricity.”

U.S. Connection: “We are pursuing access to the U.S. market.”

Product Description:

Neova’s customers are industries, municipal remote and combined power and heating plants, private district heating plants, etc. Pellets are primarily delivered to homeowners, property owners, schools and private as well as municipal district heating plants.

Customer relationships are characterized by long-term cooperation with exceptional service and sensitivity to customers’ needs. Through a widespread retail network, comprised of 250 retailers around the country, Neova combines the reliability and resources of a large company with local presence. The motto

is to always be close to those who use our products.

Since late 2007 Neova has acquired 19 heating plants, started Sweden’s first closed-system composting plant, taken ownership of Sweden’s most renowned garden and landscaping company - Hasselfors Garden, co-launched RENEC (Renewable Energy Conference), initiated a Center of Excellence in the bioenergy field. Neova is currently looking for a suitable site to start constructing a synthetic diesel plant. And there are still more things to come, all in the name of combating climate change.

One **Big** Thing

Alternative Energy Opportunities in Sweden

NFO Drives AB

P. O. Box 35
376 23 SVÄNGSTA
Sweden
Tel. + 46 454 37029
Fax. +46 454 322414
<http://www.nfodrives.se>



- Contact:** Ulla-Britt Wiking, Managing Director
ulla-britt.wiking@nfodrives.se
- Product:** Frequency converter (with patented unique properties)
- Turnover:** USD 1.5 Million
- Employees:** 10
- Ownership:** Stock-listed on NGM Nordic MTF with very wide ownership (approx. 2.500).
- Sales Area:** Main markets so far Sweden & Norway, but appointed sales partners also in the UK, the Netherlands, Germany & Finland.
- References:** A great number of Swedish Hospitals, Oslo Rikshospital, Chalmers University, Kockums, etc.
-

Looking for: “OEM partners and/or suitable sales partner(s) on the U.S. market preferable. Licensing agreements is also of interest.”

U.S. Connection: “NFO Drives AB is not currently active on the U.S. market.”

Product Description:

NFO Sinus® is a frequency converter for speed control of electric (asynchronous) motors for interference-free energy efficiency projects. It is mainly used in cooling and ventilation, fan, pump conveyor, compressor and elevator applications. 25–50% of the energy consumption can be saved. Thanks to a Swedish patented technology NFO Sinus® delivers an absolutely pure sine-wave shaped voltage to the electric motor. This gives a lot of benefits compared to conventional converters based on so-called PWM (Pulse Width Modulation) technology.

The unique benefits of NFO Sinus® are:

- Absolutely free from all EMC (Electro Magnetic Compability) interference. No filters are needed. Very important in sophisticated ambient like hospitals,

airports, radio/TV stations, laboratories, universities banks etc. Also important when wireless communication is used.

- Low cost installation - unshielded or unscreened cables can be used between converter and motor. Existing unshielded cables can be reused in energy efficiency projects.
- Flexible installation - unlimited cable distance (several hundred meters) between motor and converter.
- Reliable operation - 5 year guarantee against any bearing failures in the motor (no ball bearing currents).
- High electrical safety - the only converter that can be used when RCD-blockers are installed.
- Silent environment – the only converter without the high frequency switch sound which is characteristic to PWM inverters.

One **Big** Thing

Alternative Energy Opportunities in Sweden

NIBE Heating

Box 14
2845 21 Markaryd
Sweden
Tel. +46 433 730 00
Fax. +46 433 731 90
<http://www.nibe.eu>



Contact: Kjell Ekermo, Business Area Manager
kjell.ekermo@nibe.se

Product: Geothermal, air/water and exhaust air heat pumps

Turnover: USD 442 Million

Employees: 1900

Ownership: The parent company NIBE Industrier AB has been quoted on the Stockholm Stock Exchange's O list since 1997.

Sales Area: Mainly the European countries

References: Unipipe (Ireland), Rörmannen AB (Sweden)

Looking for: "Partnership opportunities and market access assistance."

U.S. Connection: "NIBE is going through an expansion phase. Thus we have a growing interest in getting established in the United States. We have made several visits to the United States lately."

Product Description:

NIBE Heating is the market leader for domestic heating products in the Nordic countries, Poland and the Czech Republic. Customers are the RMI sector (Renovation, Maintenance, Improvement) and the new housing market. The mission for NIBE heating is to supply homes and buildings with products that provide domestic hot water and ensure a comfortable indoor climate.

Products: NIBE Heating has the following product areas: Heat pumps (ground source heat pumps/geothermal heat pumps, exhaust air heat pumps and outdoor air heat pumps), domestic boilers, water heaters, and district heating modules.

Quality: High quality is the hallmark of NIBE products and services and, as such,

constitutes one of the determining factors for the customers' decision to buy.

Environmental: Heating products that use renewable energy are developed and made more efficient in order to pave the way for phasing out fossil fuels and reducing CO2 emissions. Environmental aspects are important both when developing and manufacturing products, through a life cycle analysis approach and by scrutinizing products from the perspective of sustainability.

Savings: Geothermal heat pumps can lower the energy consumption for heating by up to 75%. There is also access to free cooling with the geothermal heat pumps. NIBE air/water heat pump can lower the energy consumption for heating by up to 50% in comparison to the conventional heating systems.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Nilar International AB

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183 20 Täby
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Fax. +46 8 792 06 54
<http://www.nilar.com>



Contact: Lars Fredriksson, Managing Director, Europe
lars.fredriksson@nilar.com

Product: Nickel Metal Hydride Power Systems

Turnover: USD 0.6 Million

Employees: 30

Ownership: Privately owned by a small group of investors

Sales Area: Europe and the U.S.

References: Air Container

Looking for: "Nilar is currently producing and marketing Nickel Metal Hydride Power Systems for the transportation, aviation, marine and military sectors. Nilar would also be interested in meeting with U.S. based alternative energy investors."

U.S. Connection: "Nilar is pursuing access to the U.S. market and has hired a sales team in the U.S. to focus on key market segments. Nilar is pursuing connections with U.S. DoE's National Laboratories, such as Pacific National Labs, Idaho National Labs, and Argonne, to validate the Nilar technology. Nilar is pursuing funding through the DoE and Colorado State government agencies to expand production capacity in the United States."

Product Description:

Nilar produces nickel metal hydride battery power systems that deliver power and energy safely over long cycle life and are ideally suited in applications such as:

- Transportation
- Aviation
- Marine
- Military

Nilar's patented and unique battery construction provides for significant improvements in energy and power density over traditional NiMH batteries. The Nilar battery is significantly safer than lithium ion batteries, in addition to being competitive in terms of volumetric power and energy density at the pack level.

Nilar's modular battery design provides customers with an ease of integration through the ability to configure standard modules into pack of varying sizes, voltages and capacities.

Nilar is focused on delivering complete power system solutions, including thermal solutions and charge control, and controls electronics to optimize the performance of the battery pack over the life of the application.

Nilar invites you to tell us more about your specific application and learn what "Powered by Nilar" can do for you!

One **Big** Thing

Alternative Energy Opportunities in Sweden

NordIQ Göteborg AB

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449 44 Nol
Sweden
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Mobile +46 73 688 99 73
Fax. 46 31 748 07 71
<http://www.nordiq.se>



Contact: Matts Lindgren, CEO
matts.lindgren@nordiq.se

Product: Smart heating control system

Turnover: USD 2 Million

Employees: 10

Ownership: Matts Lindgren, CEO Peter Gummérus, head of development Svensksundh Invest AB

Sales Area: Scandinavia

References: SFV, Statens Fastighetsverk, Energy Solutions, Göteborg.

Looking for:

U.S. Connection: “We seek to establish a partnership with a U.S. company willing to define a product based on NordIQ technology. We are looking for someone that can take care of the U.S. certification process and build or provide an organization for marketing etc.”

Product Description:

NordIQ’s main technology is a method for keeping temperature stable in buildings. This is a key to energy savings as too little heat leads to complaints and too much heat leads to excessive energy consumption. Hence, stable temperature lets you maintain a precise acceptable indoor climate.

The natural method to keep stable temperature is to maintain heat balance. Heat supply must balance heat losses. Therefore, NordIQ Softcontrol is based on heat balancing equations, compensating for outdoor climate, building heat storage capacity, self-heating etc.

Energy saving is normally between 10-25%. In addition, another 25% of “primary energy” can be saved if waste energy sources are available e.g. in terms of district heating.

NordIQ’s main product today is district heating substations, but the technology is also applicable to any water based heating systems, particularly for residential buildings (as these have less complex heat balance). For the U.S. market NordIQ believes that a generalized product (not specialized for district heating) is appropriate.

One **Big** Thing

Alternative Energy Opportunities in Sweden

NORSTEL AB

Ramshällsvägen 15
602 38 Norrköping
Sweden
Tel. +46 11 211 740
Fax. +46 11 211 741
<http://www.norstel.com>

NORSTEL⁺

Contact: Iain Jackson, CEO
iain.jackson@norstel.com

Product: Silicon carbide materials for HEVs

Turnover: USD 750,000

Employees: 42

Ownership: Northzone, Creandum, Ekvitec and other institutional and industrial investors

Sales Area: Worldwide, especially Japan, North America and Europe

References: Rohm (www.rohm.com), Charles and Colvard (www.moissanite.com).

Looking for: “Increased awareness of Norstel as a supplier of silicon carbide material and increased market understanding of the benefits of silicon carbide as an energy saving solution in power electronics.”

U.S. Connection: “We are currently not active in the United States.”

Product Description:

Norstel is a manufacturer of single crystal silicon carbide materials and wafers. Norstel's products are primarily used in power electronics where silicon carbide can realize a 50% decrease in power loss compared to conventional silicon technology. Norstel's customers are silicon carbide device manufacturers who serve end users where the substantial energy saving benefits of silicon carbide is realized.

End applications where silicon carbide brings in significant advantages can be found in many areas, one of the most potential being the Hybrid Electric Vehicles space. Here the significant power saving of silicon carbide is further enhanced by its ability to handle higher current density than silicon and to

operate at a much higher temperature. In the Hybrid Electric Vehicle this results in power electronics with a smaller form factor, significantly less cooling requirement and improved energy efficiency. Overall this leads to better fuel economy and less CO₂ emissions.

Other areas where power saving attributes of silicon carbide has real advantage are in power factor correction circuits, solar energy electronics, and on a longer term in power transmission.

Norstel also manufactures wafers for high frequency electronics and for the gemstone market.

Norstel technology is patent protected.

One **Big** Thing

Alternative Energy Opportunities in Sweden

OPCON AB

Box 30
662 21 Åmål
Sweden
Tel. +46 532 611 00
Mobile +46 706782 217
<http://www.opcon.se>



Contact: Per Hedebäck, Head of business area Renewable Energy,
per.hedeback@opcon.se

Niklas Johansson, Vice President Opcon AB,
nj@rotor.se

Product: Energy efficiency systems

Turnover: USD 56 Million

Employees: 360

Ownership: Publicly traded on Nasdaq OMX Stockholm

Sales Area: Sweden, Europe, China, USA, Australia

Looking for: “U.S.-based companies currently working in the areas of marketing products and systems for energy efficiency within the process and power industries. Has a strong focus on waste heat recovery.”

U.S. Connection: “We are pursuing access to the U.S. market both with our Opcon Powerbox and our Renergi LTD dryers for biomass. We have already established some contacts.”

Product Description:

Opcon is an energy and environmental technology group that develops, produces and markets systems and products for eco-friendly, efficient and resource-effective use of energy. Opcon has facilities in Sweden, Denmark and China with around 360 employees and a 100 year history in energy efficiency. The company has three business areas: renewable energy, engine efficiency and mobility products, focusing mainly on waste heat recovery, energy efficiency and bioenergy.

In 2008 Opcon launched the 700 KW Opcon Powerbox for producing electricity from waste heat already at a low 55 °C and has since signed contracts with major industries in Sweden, such as Stora Enso. Opcon has also entered

several partnerships to market the product internationally with the Australian mining sector as the first export. The Opcon Powerbox is aimed primarily at process and power industries. Under good conditions production cost are approx. 3 cent/kWh.

In the last years considerable growth has been achieved in the bioenergy market where Opcon's subsidiary SRE, Svensk Rökgasenergi, is a leading supplier of flue gas condensers. It has some 70-80 installations to date, increasing energy output with 25-30% at biomass boilers. A new low-temperature dryer, Renergi LTD, also allows for sawmills or pellet manufacture to use waste heat to double the amount being dried without using more energy.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Parans Solar Lighting AB

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411 04 Göteborg

Sweden

Tel. +46 31 201 590

Fax. +46 31 201 584

<http://www.parans.com>



Contact: Nils Nilsson, Managing Director
nils.nilsson@parans.com

Product: Fiber Optic Solar Lighting

Turnover: USD 1 Million

Employees: 5

Ownership: Founder team, Chalmers University, Private investors

Sales Area: Europe and Asia

References: IKEA, City of Malmö (Sweden), Södertälje Hospital, (Sweden), Lund University (Sweden), Edinburgh University (UK), Government of Austria, Princess Margret Hospital (Canada)

Looking for: “Contact with venture capital companies that are interested in investing in Parans Daylight’s expansion to the U.S. market.”

U.S. Connection: “We have retailers in three regions in the United States. In addition we have hired a person in the country to coordinate the American market.”

Product Description:

Parans technology is called Fiber Optic Solar Lighting. Sunlight is collected by Parans Solar Panels outdoors. The sunlight is then brought into the building through Parans Optical Cables. Indoors, the sunlight flows out through Parans Luminaires. Parans Solar Panels can be mounted on roofs or facades and employ an array of optical lenses to collect and concentrate incoming sunlight. Installation is easy to integrate with buildings’ surfaces to allow for architectural integrity.

The Parans Optical Cable is thin and flexible, made of several thin fiber optic strands. The high light transmission allows the sunlight to reach far into buildings.

Indoors, the sunlight is emitted through a Parans Luminaire, specifically designed to recreate the sensation of sunlight.

- Productivity increases by 6–16% with natural light.
- Electrical lighting represents 40–50% of the energy consumption in commercial buildings.
- Electrical lighting contributes 25–30% of the emission of greenhouse gases generated in commercial buildings.
- Exchanging half of a building’s electrical lighting with Parans Fiber Optic Solar Lighting can lower the energy costs significantly and the emission of greenhouse gases by 10–15%.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Picoterm AB

Kista Science Tower

164 51 Kista

Sweden

Tel. +46 733 254 790

<http://www.picoterm.com>



Contact: Ulf Sundman, CEO
ulf@picoterm.com

Product: Thermoacoustic engine technology

Turnover: Start-up phase

Employees: 3

Ownership: Bengt Ovelius, Ulf Sundman, Peter Näslund, Rolf Djärf, Per Strandqvist, Dr. Michael Dudley (USA), Paul Kaur (Estonia), Igor Suncheley (Russia)

Sales Area: Worldwide

References: SP Technical Research Institute of Sweden, Chalmers University of Technology

Looking for: "Venture capital and joint venture partners."

U.S. Connection: "We cannot make this public at the time being."

Product Description:

Air conditioning, refrigeration and the internal combustion engine account for a large part of today's energy consumption and are major contributors to global warming. Picoterm is developing a new kind of engine technology that combines the science of heat (thermodynamics) with the science of sound (acoustics), creating thermoacoustics. Thermoacoustic engines replace the mechanical piston in the conventional engine with concentrated sound waves that can either be harnessed for power or drive a cooling unit. Picoterm's innovative engine technology addresses the limitations of the currently available thermoacoustics and enables the use of this technology in the production of heat pumps, refrigeration units, electricity, HEVs and boats.

There are several advantages of using thermoacoustics. The engine becomes fuel independent, the efficiency is threefold compared to conventional technology and the weight of the engine is only one 10th of

a standard engine. The majority of the energy generated will be used for the performance and thus no cooling is necessary. Cooling, heat and electricity can easily be produced by the sun. The solution is simple, reliable and robust. Picoterm thermoacoustics can radically reduce CO₂ emissions and our dependence on fossil fuels. In 2008, WWF selected Picoterm as one of the most innovative cleantech companies in Sweden. Picoterm is currently in the process of producing a prototype. A test prototype has been tested and the results were verified by SP Technical Research Institute of Sweden on the 29th of January 2009. The test and report have been made by Dr. Krister Larsson (www.sp.se).

Next step is to build a full scale prototype to define a first application area. The company is in the process of issuing new shares worth SEK 20 Million, this will be closed on the 1st of July 2009.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Ranotor

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193 40, Sigtuna
Sweden
Tel. +46 8 592 524 28
Fax. +46 8 592 591 60
<http://www.ranotor.se>

**RANOTOR**

Contact: Peter Platell
platell@ranotor.se

Product: Modern high performance steam engines

Turnover: USD 0.3 Million

Employees: 7

Ownership: Ove Platell, Peter Platell, Sten Dahlman, Reidar Lindström

Sales Area: Worldwide

References: Volvo trucks, SCANIA, Volvo Cars in Sweden and GM in the US

Looking for: "VC and business experiences on the U.S. market."

U.S. Connection: "We have worked with GM but we are still looking for venture capital."

Product Description:

Small Scale Rankine cycles (Steam Power) have unique possibilities to use a much wider range of energy sources than any other power cycle, such as liquid and solid fuel, solar energy and waste heat from other power cycles. The capability to convert waste heat into useful work has gained interest within the automotive industry and RANOTOR AB (founded by the former project leader for SAAB-

SCANIA's steam engine project during the 70's) is today working with Swedish truck manufactures and GM on WHR (Waste Heat Recovery) in automotive applications. Automotive application is a long-term project, but there are other applications as bio-fueled CHP. Contacts in Minnesota, Montana and Canada are interesting in purchasing steam engines for CHP and railway applications.

One **Big** Thing

Alternative Energy Opportunities in Sweden

REAC Fuel AB

REAC Fuel AB
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Sweden
Tel. +46 46 286 34 91
Mobile +46 70 863 07 75
<http://www.reacfuel.com>



- Contact:** Anders Carlius, CEO
anders.carlius@reacfuel.com
- Product:** Container sized production units that produce diesel from biomass
- Turnover:** < USD 0.5 Million
- Employees:** 7
- Ownership:** Carlius Invest AB, Rune Ekman, Swedish early stage institutional investors
- Sales Area:** Nordic countries
- References:**
-

Looking for: “Capital and partners to assist with the expansion to the U.S. market, REAC Fuel’s largest target market.”

U.S. Connection: “The U.S. has the largest fuel market in the world. We would like to get the U.S. to be self supplied in fuel within 7 years. We have done visits with Minister Carlgren to California.”

Product Description:

The company makes high efficiency synthetic real gasoline, diesel and kerosene from wood. The REAC Fuel process can use any raw material containing cellulose, hemi-cellulose or lignin. Examples are: wood, recycled paper, hemp, switchgrass or any other high-yield energy crop.

All the carbon released with REAC diesel or any other REAC fuel product is taken from the atmosphere when new biomass is grown and converted into REAC Fuels. No new infrastructure needs to be built, no cars need to be adjusted and no trucks need conversion kits to run on these alternative fuels.

There is no cost for the local economy but an advantage to the local biomass producers. REAC Fuel gasoline and diesel are price competitive with regular diesel and gasoline approx €0.40/liter. REAC Fuel produces real gasoline and real diesel, not a substitute.

REAC Fuel can be produced in small container-sized production units, close to where the raw material is produced, with very high efficiency. Only the final product, gasoline or diesel, is moved from the production site, decreasing the logistical costs.

One **Big** Thing

Alternative Energy Opportunities in Sweden

REHACT AB

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122 40 Enskede
Sweden
Tel. +46 709 566 756
<http://www.rehact.com>



Contact: Svante Bengtsson, CEO
svante@rehact.com

Product: Energy efficient energy system, Green Buildings

Turnover: USD 0.2 Million

Employees: 4

Ownership: 94% owned by management team

Sales Area: Sweden, Poland

References: Corporate Profiles Real Estate, Poland

Looking for: “Venture capital and business partners in the Green Buildings sector.”

U.S. Connection: “We have just started investigating the possibility to install our technology in public schools in order to improve climate and reduce energy need.”

Product Description:

REHACT has developed a completely new system for cooling, heating, hot water and fresh air in buildings. The combined system requires 85% less external energy compared to traditional systems. The system is very cost-competitive and payback time of the system is usually less than one year.

The electricity used for cooling sometimes overloads the power grid of entire states. We separate the process of providing fresh air from the process of cooling the building and a lot of energy is thereby saved. We reduce the operating cost for the owner of the building and lower the risk of power failures.

The REHACT energy system provides a building with both cooling, heating, hot water and fresh air. In combination with heat pumps and under floor heating, our patented ventilation unit can provide the necessary energy for heating and cooling

with a mere 15% of today's need. The remaining 85% of the energy comes from the immediate surroundings and is both renewable and without cost.

The company focuses on new construction of buildings, mainly large office buildings and hotels. We want to operate in markets with high level of new construction, such as Eastern Europe, Dubai, China and India. The customers are building constructors, hotel chains and large office suppliers.

We are also interested in finding partners and investors in the U.S., especially within Green Building and LEED certification.

The company was selected “Top 12 Swedish Climate entrepreneur” by WWF in March 2008 and has since then also received several international awards.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Scandinavian Biogas Fuels AB

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753 29 Uppsala
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Tel. +46 18 125 821
Fax. +46 18 301 084
<http://www.scandinavianbiogas.com>



Contact: Thomas Davidsson, CEO
thomas.davidsson@scandinavianbiogas.com

Product: Cost-effective biogas production method

Turnover: USD 6 Million

Employees: 30

Ownership: Novator Biogas Sweden SARL, Erik Danielsson, Jörgen Ejlertsson, Ola Ödmark

Sales Area: Sweden, Korea, USA, Baltics, Finland, Poland, Chile

References: Ulsan (Korea); Stockholm Water (Sweden)

Looking for: “American VC for setting up a subsidiary for North America in order to capitalize/execute on all the leads we have for the American market; Complementary partners to enhance quick growth on the stillage, glycerin and sludge market; R&D funding/governmental support to set up and verify our technology on the North American market.”

U.S. Connection: “We do have a few interesting leads that we are working on in the U.S. right now and hopefully we can discuss them at a later time.”

Product Description:

Scandinavian Biogas has developed methods to produce biogas more cost efficiently, made possible mainly by new improved process design (raw material flexible, robust and reliable), process stimulated additives (higher gas yield), patented ultrasound technology and smaller foot-print of plants (decrease in investment cost)

The company’s business focus is to optimize the production of biogas from existing and new biogas plants and to utilize landfills to extract bio methane.

Business opportunities include:

- Increasing the gas output at existing wastewater plants by 3-5 without adding infrastructure such as digestion chambers, etc.
- Building new biogas plants in conjunction with ethanol and biodiesel plants where organic material is available.
- Using existing landfills and upgrading the biogas with the latest technology into vehicle fuel.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Seabased AB

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751 83 Uppsala
Sweden
Tel. +46 18 472 30 90
Fax. +46 18 472 30 91
<http://www.seabased.com>



- Contact:** Billy Johansson, Managing Director
billy@seabased.com
- Product:** Wave power solutions
- Turnover:** USD 3-4 Million
- Employees:** 30
- Ownership:** Leijon Engineering AB, Bernhoff Technology AB, Uppsala University Development AB, Sjötte AP fonden, 100 small share owners
- Sales Area:** Nordic countries but now expanding outside this region. A new company Seabased Energy USA AB is established for the U.S. market.
- References:** Vattenfall, Göteborg Energi AB, Fortum Generation AB (Sweden)
-

Looking for: “Partners for joint ventures in the U.S. and elsewhere and investors interested in funding further wave power research at the Uppsala University.”

U.S. Connection: “We have recently visited California and we have had discussions with possible customers for the first projects on the west coast of the U.S.”

Product Description:

Seabased Group develops and delivers industrial solutions for sustainable conversion of ocean wave energy to electricity. The system is based on a unique three-phase, permanent magnet, and linear generator especially developed for ocean bed arrays and directly driven by point absorbers (buoys) on the surface.

Seabased Group works in close cooperation with the Uppsala University in Sweden. By deploying the robust, simple and small, yet scientifically and technically sophisticated wave energy converters of Seabased in arrays on the ocean floor, a scalable power plant with high economic potential is achieved. The first projects in the U.S. are being studied for coming quotations.

The first Wave Energy Converter was manufactured by Uppsala University and deployed on the west coast of Sweden in March 2006. This unit is still in operation.

A commercial system solution designed by Seabased is now available and manufacture has started in June 2008. The pattern arrangement and number of point absorbers as well as deployment depth may vary. The overall indication is, however, that systems where a number of small specifically designed generators are connected in arrays, can extract substantial quantities of electric energy even from milder ocean climate areas. This at competitive prices with no need for long-term subsidies or tax breaks.

One **Big** Thing

Alternative Energy Opportunities in Sweden

SEEC AB

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192 67 Sollentuna
Sweden
Tel. +46 8 754 83 01
<http://www.seec.se>



Contact: Thomas Wildig, Sales Manager
thomas.wildig@seec.se

Product: Energy Storage System

Turnover: USD 1.7 Million

Employees: 4

Ownership: Privately owned company

Sales Area: Europe, USA, Australia

References: Katrineholm Municipal (Sweden), Sigtuna Municipal (Sweden)

Looking for: “Companies that are interested in using the technology license within their business region.”

U.S. Connection: “We are currently doing research for entering the U.S. market.”

Product Description:

SEEC produces industrial standard BTES (Borehole Thermal Energy Storage) heat pump technologies for larger users, such as shopping malls, industrial facilities, apartment buildings and hospitals. The unique characteristic of the system is the seasonal storage capability, storing winter's coldness to be used for cooling during the summer and summer's heat to be used for heating during the winter.

The system consists of 38 boreholes connected to cooling panels/batteries and compressors, control system and software for the loading and unloading algorithm of the storage. The compressors are connected to buildings' heating and cooling system.

Typically the boreholes are within 6 feet from each other. The volume, losses and energy storage capacity determines how much energy can be stored, typically 0.6 kWh per m³ rock.

The system's target markets are large industrial and residential buildings, around and above 10.000 sq. m. The normal COP is from 5 to 8 depending on cooling and heating needs.

SEEC installation can cut 50–80% of the energy costs. The system installation is slightly more expensive than that for a conventional plant but the operating costs are much lower.

One **Big** Thing

Alternative Energy Opportunities in Sweden

SEKAB

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Sweden
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Fax. +46 660 543 80
<http://www.sekab.com>



Contact: Björn Edström, CEO
Bjorn.edstrom@sekab.com

Product: Bioethanol, Cellulosic Ethanol

Turnover: USD 350 Million

Employees: 140

Ownership: Skellefteå, Örnsköldsvik and Umeå Energy companies, Länsförsäkringar Västerbotten (insurance company), OK Ekonomisk Förening (fuel cooperative), EcoDevelopment AB (management)

Sales Area: Europe

References: Biofuel region, BioAlcohol Fuel Foundation

Looking for: "SEKAB is already active on the U.S. market but is always looking for new partners/investors for further expansion."

U.S. Connection:

Product Description:

SEKAB's mission is to create the conditions for actively promoting sustainable transport for the future with the help of long-term, sustainable biofuels.

SEKAB's ethanol is biological and the raw materials for production in Örnsköldsvik consist, amongst other things, of sugar solution obtained from paper pulp production and oxygen from the air. SEKAB also buys ethanol produced from sugar cane. The water remaining in 95 per cent ethanol can be removed through dehydration using molecular sieves. The dehydrated ethanol is then used as fuel or a raw material for other chemical products manufactured by SEKAB. SEKAB's Ethanol R&D Plant is housed in SEKAB's premises in Örnsköldsvik and

has a capacity of around 300-400 l/day. For this quantity the plant uses approximately 2 tons (dry weight) of wood chippings/other raw material containing lignocellulose.

The technology is based on hydrolyzing the cellulose and hemicellulose, whereupon the sugar is fermented to ethanol, which is then distilled. In weak acid hydrolysis, sulphuric acid or sulphur dioxide is used as a catalyst at temperatures of around 200°C. In enzymatic hydrolysis, the material is first treated with a mild weak acid hydrolysis after which enzymes hydrolyze the remaining cellulose in a third stage. Both the industrial processes for weak acid and enzymatic processes are currently being developed at the plant.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Svensk Rökgasenergi AB

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100 31 Stockholm
Sweden
Tel. 46 8 580 873 00
Fax. 46 8 322 974
<http://www.sre.se>



Contact: Per Egeberg, CEO
per.egeberg@sre.se

Product: Flue gas condensation technology, low-temperature dryers for biomass

Turnover: Not disclosed

Employees: 65

Ownership: Opcon AB

Sales Area: Mainly Europe

References: Fortum, E.ON (Sweden),

Looking for: “Investors, partners and projects in the US markets.”

U.S. Connection: “Looking for projects and partners in the US”

Product Description:

Svensk Rökgasenergi is a leading supplier of complete systems for flue gas condensation and dust separation and drying process systems. Our Renergi system and technology enhance the efficiency of district heating plants, sawmills/pellet manufacturers and industry, and minimizes the impact of dust emissions on the environment.

The company markets a number of modules that can be combined to form complete systems operating within an output range of 1.5-30 MW or higher when used in parallel. Customers include DH plants, sawmills, pellet producers and industrial users.

The products are developed and manufactured in the company's own facilities in Sweden. The systems are built from standardized modules, thus facilitating a rapid delivery and easy installation and service.

Renergi can be characterized by:

- All development in/house
- Reliable and proven technology
- Simple, standardized modules
- Unique, patented technology
- Robust yet simple design
- Attractive pricing
- Complete program of total solutions

One **Big** Thing

Alternative Energy Opportunities in Sweden

S-Solar AB

(Formerly Earthsun/Sunstrip)
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612 44 Finspång
Sweden
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Mobile +46 70 620 78 88
Fax. +46 122 866 69
<http://www.ssolar.com>

S-Solar

Contact: Klas Ståhl, CEO and Chairman
klas.stahl@ssolar.com

Product: Solar thermal energy technology and systems

Turnover: 6 MUSD 2008, 14 MUSD 2009(forecast)

Employees: 30

Ownership: Klas Ståhl, Peter Löfgren, Rupert Lywood, David Royds, Ulf Tonelid, Henrik Moberg

Sales Area: EU, Middle East, China, Canada, Latin America

References: European Solar Thermal Federation,

Looking for: "A business partner, distributors or a joint venture partner to enable a market entry into the high potential U.S. market for renewable energy and solar thermal energy business."

U.S. Connection: "We are evaluating partnerships supported by the Swedish Chamber of Commerce and the Swedish Trade Council."

Product Description:

Solar thermal energy systems for single and multi family houses, solar farms, industrial processes, commercial buildings etc. Provides hot water, heating, cooling from small, all roof or large-scale solar collectors. S-Solar is providing a set

of products based on advanced thin film technology that have been proven cost effective, to produce an endless supply of energy at the point of need and a CO2 neutral clean energy at a predictable energy cost for the next 20-30 years.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Stridsberg Powertrain AB

Stallarholmsvägen 40
124 59 Bandhagen
Sweden
Tel. +46 8 992 190
<http://www.powertrain.se>



Contact: Lennart Stridsberg, CEO
lennart@stridsberg.se

Product: Hybrid system for vehicles

Turnover: USD 2.4 Million

Employees: 8

Ownership: Lennart Stridsberg

Sales Area: Sweden

References: Saab Avionis, ABB Robotics (Sweden)

Looking for: “Partners (ideally a car manufacturer interested in developing its own hybrid technology; a supplier to the automotive industry; VC company or consultancy firm) who can contribute to the financing of a demonstration project, and ideally also participate in the project and assist with building the business.”

U.S. Connection: “We have started activities to set up a regional office in the Detroit area. We have also been invited to visit Chrysler to explain our technology.”

Product Description:

The Strigear hybrid system technology offers a 66% reduction in CO2 emissions for cars like the Volvo V70, and improves performance. This is proved in extensive simulations made by the company and has been confirmed by simulations made by a well established vehicle development company.

A diesel Strigear will emit less than half of the CO2 emitted by a coal power plant to charge an equal size electric battery vehicle.

Hybrid vehicles designed using the Strigear principle offer significantly lower

fuel consumption and higher acceleration when compared to a Prius type design with very similar components. For details see www.powertrain.se.

In a Strigear hybrid, all power from the engine is transferred mechanically when the clutch is closed. This provides a high efficiency connection between the engine and the tires.

The next step is to build a demonstration unit where all the simulated data can be proved and to set up a marketing and sales support organization primarily to selling licenses of the technology.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Swebo Bioenergy International AB

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Sweden
Tel. +46 921 578 00
Fax. +46 921 176 73
<http://www.swebo.com>



Contact: Mattias Lindgren
mattias.lindgren@swebo.com

Product: Equipment for domestic and large-scale renewable energy solutions within bioenergy and electrical production.

Turnover: USD 11 Million

Employees: 33

Ownership: Mikael Jansson, Magnus Jansson, Sustainable Technology Partner

Sales Area: Europe and North America

References: New England Woodpellet, Luleå Energi AB

Looking for: “Cooperation/partners in the bioenergy sector and assistance in establishing Swebo in the U.S.”

U.S. Connection: “Swebo has established partners in the U.S. for our products. We have been in contact with government agencies about renewable solutions. We have equipment installed in the U.S.”

Product Description:

Swebo has the technology and equipment for all kinds of wood based fuel materials and equipment for agricultural waste.

The products cover a large range of heating solutions from domestic to district heating with pellet and wood burners and boilers, bio burners, small scale electric production and solar products. One of the most innovative

products is the extremely flexible burner, Swebo Biotherm, which is a unique product for burning difficult fuels such as horse and poultry manure to create hot water, steam or COP.

The company runs a R&D laboratory together with the Luleå University of Technology.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Swedish Biofuels AB

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10227 Stockholm
Sweden
Tel. +46 8 663 27 40
Fax. +46 8 663 27 31
<http://www.swedishbiofuels.se>

Contact: Dr. Angelica Hull, Managing Director
angelica.hull@swedishbiofuels.se

Product: Second generation biofuels

Turnover: USD 2.2 Million

Employees: 12

Ownership: Privately owned by Dr. Angelica Hull

Sales Area: Sweden

References: FMV (Swedish Defence Materiel Administration), Statoil AB (Sweden)

Looking for: "Production and investment companies, interested in producing/introducing new bio-components for motor fuels in EU countries and on the U.S. market; Production and investment companies, interested in producing/introducing a new biological jet fuel in the EU countries and on the U.S. market."

U.S. Connection: "Swedish Biofuels AB is currently carrying out a four year program, financed by the U.S. Government Defense Advanced Research Projects Agency (DARPA), called BioJet100 to develop a 100% biological jet fuel equivalent to JP-8. As a result of the first phase of this program Swedish Biofuels AB has already succeeded in developing a biological jet fuel SB-JP-8, which meets or exceeds all key first level requirements of the military specification for petroleum JP-8 kerosene. The second of the two phases of the project is now underway. Expected completion is 2011."

Product Description:

The emphasis of the Swedish Biofuels AB approach to alternative fuel production is to improve existing biofuel options without any impact on existing engine technology, and reducing the logistics problems for fuel producers. The company has a strong patent base for the production of green transport fuels from biomass, such as agricultural waste, forestry and forestry waste. The work focuses on increasing the proportion of biologically sourced raw materials, on improved performance and lower emissions, cost-effectively.

Products include:

- *Biogasoline100* (replacement for E85) has the same mileage as regular gasoline and is 100% biologically sourced. There are no net CO2 emissions with Biogasoline100.

Biogasoline15 is a gasoline fuel for standard

engines. It has 15% of biological component BGB. BGB can be added to regular gasoline instead of ethanol, removing the need for extra processing steps and complicated logistics. BGB controls the vapor pressure and the mileage of BGB blends is the highest of all fuels considered. Agrodiesel 15 is a diesel fuel for standard engines. It has 15% of bio-components and the same engine performance as commercial diesel fuels, significantly improved emissions properties and high mileage.

A further development of our technology is the production of drop-in biological diesel and gasoline fuels. Drop-in fuels are alternative fuels for use in standard engines giving identical performance as existing fossil fuels, at 0-100% blends with fossil fuels, and the use of existing distribution.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Swedish Biogas International AB

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Contact:	Peter Undén, CEO Company Group peter.unden@swedishbiogas.eu Thomas A. Guise, CEO US Subsidiary thomas.guise@swedishbiogas.eu
Product:	Biogas and Bio-Methane process and production solutions
Turnover:	USD 1.5 Million
Employees:	20
Ownership:	Stig Holm, Chairman (initiator), Gustaf Mannersson (investor), Peter Lindstén (investor), Carl Lilliehöök (Marketing Director, Usitall AB public company), Skandifinanz Bank AG (investor), Peter Undén (CEO), Jonas I Ahlbert (COO)
Sales Area:	Sweden, USA, South Korea
References:	Örebro Municipality, Lidköping Municipality and Göteborg Energy Company, Fortum Energy Company (Sweden), City of Flint in Michigan (USA), Seoul City (South Korea), Gangwon Province (South Korea)

Looking for: "Suitable industrial partners and further projects for a successful entry into the U.S. biogas and bio-methane market."

U.S. Connection: "We have established a fully owned subsidiary registered in Michigan. The CEO of the company is based in Flint, Michigan and joined SBI during May 2009. We are currently in the establishment phase of our first U.S. based project in Flint, in which SBI is responsible for engineering, procurement, and construction of a biogas plant at the waste water treatment plant in the town. Furthermore, the project upgrades the produced biogas into vehicle grade bio-methane."

Product Description:

Swedish Biogas supplies process and production solutions for biogas and biomethane from a wide variety of organic substrates. The company has an exclusive license to the knowledge, patents and operational experience of the municipal biogas company Svensk Biogas. Swedish Biogas's first project in the U.S. is in Flint, Michigan and involves improving the sludge process at their waste water treatment plant to produce biogas for decreased energy dependence and biomethane market build-

up. The company is in the establishment phase and construction on site will commence early fall of 2009. Swedish Biogas has 16 years of operational experience within bio-methane and offers design process for establishing a new biogas plant, increased production and stability in current biogas plants, increased efficiency of biogas production at wastewater treatment plants, performance based operations of plant.

One **Big** Thing

Alternative Energy Opportunities in Sweden

TD Light Sweden AB

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TD LIGHT SWEDEN AB

new light technology

Contact: Lars Nyström, Vice President
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Product: StingyLight, low energy lighting

Turnover: USD 0.5 Million

Employees: 4

Ownership: 250 shareholders

Sales Area: Worldwide

References: Posten Sverige, SECO Tools AB, Lokum

Looking for: “Strong investors and partners for putting up a Stingylight production line in the USA and Canada.”

U.S. Connection: “At the moment we do not have any contact with U.S. businesses, researchers or government agencies. Our first market is Sweden, but the U.S. is very interesting.”

Product Description:

The product is a Swedish innovation that will revolutionize global energy consumption for lighting. StingyLight gives large environmental benefits and considerable cost savings. The light was initially developed to replace the fluorescent lamps in emergency exit signs while keeping the existing armatures. The continuing development of the product will enable to replace the fluorescent lamps in all general armatures with StingyLight.

The technology is based on diodes that give higher effect with considerably less energy consumption. The lower energy consumption is of primary interest since 20% of the global energy consumption is for the purpose of lighting.

The major benefits are:

- Very low energy consumption
- Long lifetime, at least 100.000 hours
- No maintenance is needed
- Less disposal and toxic discharge
- Very low heat emission
- Easy assembly
- Low investment
- No mercury

The primary targets are government, city council and municipal buildings. A replacement would very quickly generate large savings due to the vast number of armatures. These organizations should also proceed and set an example for the private sector.

One **Big** Thing

Alternative Energy Opportunities in Sweden

TranSiC AB

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<http://www.transic.com>



Contact: Mats Reimark, CEO
Mats.reimark@transic.com

Product: Bipolar power transistors in silicon carbide

Turnover: > USD 0.4 Million (start-up phase)

Employees: 8

Ownership: Volvo Technology Transfer, Midroc New Technology, Industrifonden, STING, Bo Hammarlund, Mikael Ostling and Martin Domeij

Sales Area: Europe, USA and Japan

References: IXYS (Germany); Lund University (Sweden)

Looking for: “Investors for the third funding round in October 2009, totaling USD 20 Million.”

U.S. Connection: “We have a small number of strategic customers and a slightly bigger number of strategic suppliers in the U.S. We are involved in evaluating the progress in high quality Silicon Carbide (SiC) wafer technology that has been identified as a strategic area in the U.S. Here we are independently working with three major suppliers of SiC wafers. Ours is one of the most demanding applications for SiC and our feedback is pushing the limits of the manufacturing technology.”

Product Description:

TranSiC designs, manufactures and sells a bipolar power transistor in Silicon Carbide, BitSiC ®. This power transistor is designed to fit applications such as motor control in switch mode. It has unique properties, e.g. low losses, can handle high voltages 1200 V and high currents 30 Amps at high temperatures 225 Celsius. The Silicon Carbide power transistor has inherently lower electrical losses (50% lower than Silicon transistors) and gives an opportunity to design complete systems in a much more efficient way in terms of cost and total lifetime energy savings.

Suitable applications for BitSiC transistors are demanding applications like aerospace, next generation hybrid-electric-vehicles (HEV) and wind turbine generators. The device will also be a crucial part of the next generation distributed high power electrical grids.

TranSiC's potential customers are design houses doing projects for the automotive, medical and wind power industries. The end-user will be the HEV driver, users of electricity from wind power and eventually switching electricity from the power grid.

One **Big** Thing

Alternative Energy Opportunities in Sweden

Vertical Wind AB

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<http://www.verticalwind.se>



Contact: Björn Hellström, Market Director
bjorn.hellstrom@verticalwind.se

Product: Wind turbines

Turnover: Start-up phase

Employees: 12

Ownership: Leijon Engineering AB, Bernhoff Technology AB, Energy Potential AB

Sales Area: Scandinavia

References: Clients confidential; contracts pending

Looking for: "Venture capital and joint venture partners on the U.S. market."

U.S. Connection:

Product Description

Vertical Wind AB develops, produces and markets a new vertical axis wind turbine with straight bladed H-rotor turbine. The design is simple with minimum of parts and direct driven permanent magnet synchronous generators placed on the ground.

This technology will use less material and be more cost-effective than current commercial horizontal axis turbines. Furthermore, due to the simplicity, operational robustness is boosted and maintenance needs are reduced.

The technology has been developed by researchers at the Uppsala University's Electricity Research Department. During 2009 a 200 kW wind turbine will be installed at site outside Falkenberg, Sweden. The wind turbine will be 50 meters tall and will have 26 meters long blades. It is expected to generate rated power 200 kW at winds of 11 m/s. This first prototype will be connected to the grid and serve as a full scale demonstration of the new technology.

One **Big** Thing

Alternative Energy Opportunities in Sweden

XYLOPHANE AB

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<http://www.xylophane.com>



Contact: Håkan Grubb, CEO
hakan.grubb@xylophane.com

Product: Bio-based and renewable oxygen and grease barrier material for packaging.

Turnover: <USD 1 Million

Employees: 7

Ownership: SEB Ventures, Capricorn Venture Partners, KTH Chalmers Capital, Chalmers Innovation, Innovationsbron, 3 founders, 3 angel investors

Sales Area: Global

References: Jonsac AB (Peter Ramberg) – coated industrial sacks

Looking for: “Investors with industrial competence (packaging products, chemical production, paper chemicals.)”

U.S. Connection: “We are looking for business partners within our main segment, i.e. producers of packaging board, for joint customer development projects.”

Product Description:

Barrier materials are critical for food packaging. Xylophane AB's business mission is to offer a renewable barrier, i.e. a bioplastic, against oxygen, grease and aroma to customers within the packaging industry.

Xylophane's barrier is based on the natural carbohydrate xylan, which can be extracted from agricultural and forest industry residues. This makes the material renewable and biodegradable. The barrier properties make Xylophane compete with the dominating high barrier materials on the market - the synthetic plastic EVOH and aluminum foil, and the material is more cost efficient than the existing barriers at large scale production.

Xylophane's customers are the manufacturers of multi-layer packaging

in paper, board and plastics. Suitable end uses for Xylophane's barriers are paper sacks, flexible packages, board packaging as well as aseptic or extended shelf life liquid boards. The main customer group is paper and board producers who can add value to their existing products by offering a board/paper with barrier function.

The existing barriers, such as the synthetic plastic EVOH, are based on fossil fuels and with an energy consuming production process. The base component xylan in Xylophane's barrier can be extracted from renewable by-products in an energy efficient process. After use, the barrier material can be composted or incinerated without CO2 emissions, contributing to sustainable development.

One **Big** Thing

Alternative Energy Opportunities in Sweden

ÄFAB

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Contact: Bengt-Erik Löfgren, Managing Director
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Product: Bioenergy consultant

Turnover: USD 0.6 Million

Employees: 4

Ownership: Bengt-Erik Löfgren

Sales Area: Scandinavia, Europe and US (Start up in Minnesota)

References: PellSam, Swedish Homeowners Association, Scandinavian Cleantech Export Association, Bioagroproject, EU-Life program

Looking for: “We are looking for partners to sell, install and/or produce bioenergy technique for private homes as well as for district heating. Contacts with venture capital companies that could help the company finance the start-up process of ÄFAB USA. The current exit strategy is to introduce ÄFAB USA at Nasdaq before 2012.”

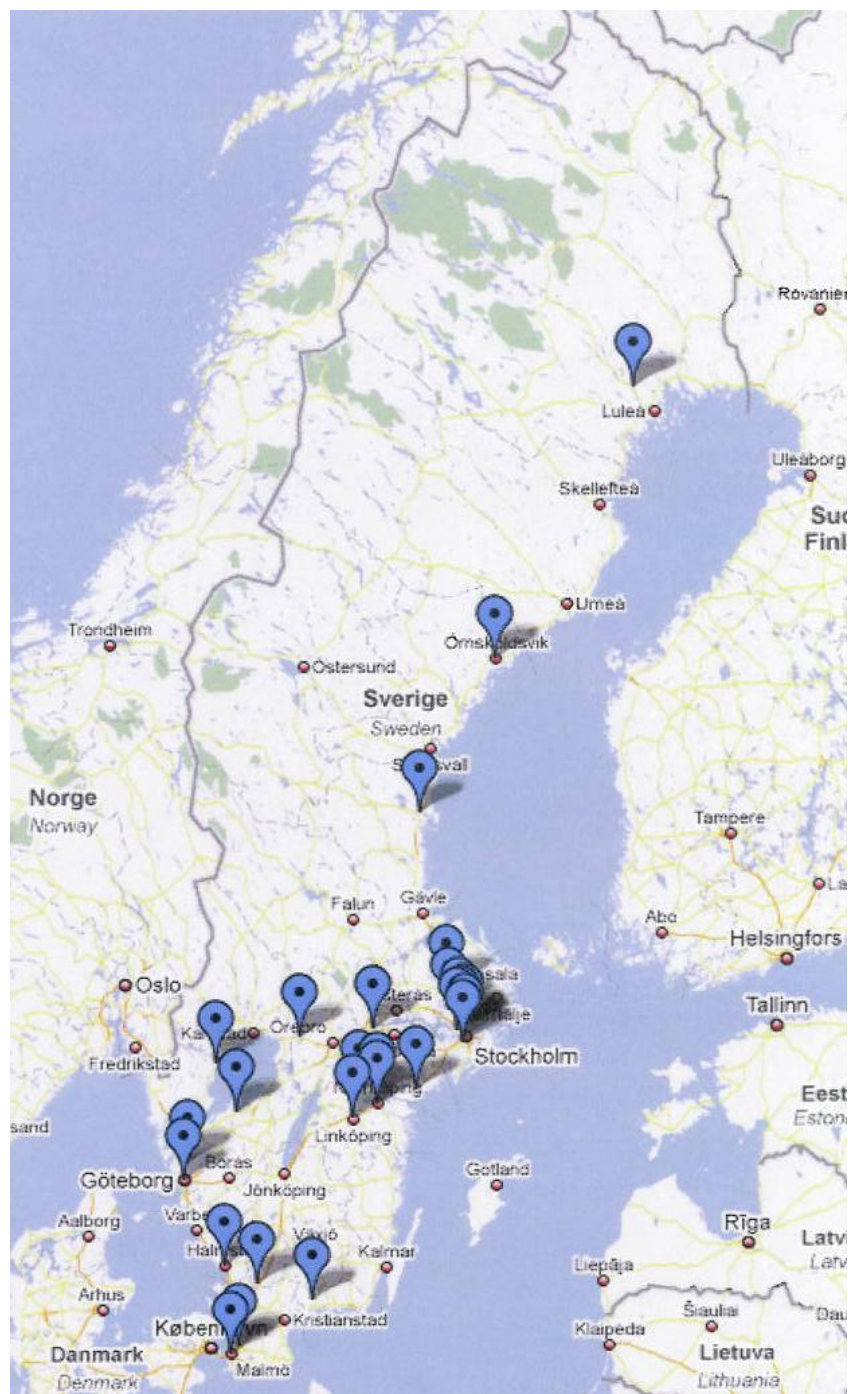
U.S. Connection: “We are involved in starting up IRETI (International Renewable Energy Technical Institute) in Minnesota. The institute is connected to University of Minnesota as well as Biobusiness Alliance of Minnesota. IRETI have just got USD 1.5 Million in financing from Minnesota State. We are also in a starting up position for an LLC for introducing Swedish bioenergy to the market in the U.S. We cooperate with companies in Minnesota, Colorado, Illinois, New York and Georgia.”

Product Description:

ÄFAB specializes in the field of the development of small scale bioenergy. With 25 years of experiences from the European market, ÄFAB is well qualified and representative for a number of companies that could speed up the use of bioenergy, thus creating a new platform of independent franchise companies all over U.S. These companies would be built on the revenues from certification, education, testing, exhibition, marketing and development together with other suppliers and manufactures of Green Energy solutions plus kick-backs from producers. ÄFAB has developed and is responsible for

the PellSam (Pellet Organization) *certification and training programs* and the graduation process. The courses (such as waterborne heating and accumulation systems) are popular and often requested by both authorities and professionals.

The company's annual turnover comes mainly from consultancy, services, testing and training.





Embassy of the United States of America